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## Plastics in the Circular Economy

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**Abstract:** The circular economy focuses on the issue of low use of materials. In a circular economy, the value of products and materials is preserved for as long as possible, waste and resource use are minimised, and resources do not leave the economic flow once they have reached the end of their lifecycle, but are reused and create value still.<sup>2</sup> The European Union has concluded that the creation of a genuine market for recycled plastics may allow it to turn plastic waste into an economic resource. Thus, the European Union declares war on all single-use plastics. The new legal acts change the development model of the European Union countries and the urge to “buy, consume and throw away” is now replaced by “buy, reuse, repair, recycle”.

**Keywords:** circular economy; plastics; competitive economy; single use plastics directive

### 1. Introduction

The new Circular Economy Package was published in the Official Journal of the European Union on 14 June 2018. The package sets out new binding goals and deadlines for waste recycling and reducing landfills.

Europe must transform its linear economic model, which starts from the premise that resources abound, are available and very cheap to dispose of (an “obtain, manufacture, use, dispose of” growth pattern), into a pattern that encourages reuse, repairing, reconditioning and recycling existing materials and products.

Therefore, the new legal acts change the development model of the European Union countries and the urge to “buy, consume and throw away” is now replaced by “buy, reuse, repair, recycle”.

Thus, the EU economy could become more competitive and more resilient, as the value of products and materials would be preserved for as long as possible and less waste would be generated, while reducing pressure on resources and the

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<sup>2</sup> [http://europa.eu/rapid/press-release\\_IP\\_17\\_104\\_ro.pdf](http://europa.eu/rapid/press-release_IP_17_104_ro.pdf).

environment. The linear economy uses resources, and whatever remains is considered waste and goes to the landfill or is spilled, burnt, etc., and this is what causes the major environmental problems: global warming, pollution, resource depletion, gradual and irreversible degradation of biodiversity.

In essence, the circular economy focuses on the issue of low use of materials.

In a circular economy, the value of products and materials is preserved for as long as possible, waste and resource use are minimised, and resources do not leave the economic flow once they have reached the end of their lifecycle, but are reused and create value still.<sup>1</sup>

## **2. Plastics in a Circular Economy**

The European Union has concluded that the creation of a genuine market for recycled plastics may allow it to turn plastic waste into an economic resource. Thus, the European Union declares war on all single-use plastics.

On 2 December 2015, the European Commission presented a reviewed circular economy package. The proposals include a non-legislative section, which contains the Communication “Closing the loop – An EU action plan for the Circular Economy”<sup>2</sup> and a section that proposes a series of amendments of the existing legislation on waste treatment and recycling.

In the early 2017, the European Commission published a report that outlines achievements and priorities with regard to the circular economy.<sup>3</sup>

Plastics are a priority action area, so the Commission has proposed a Strategy on plastics, which will aim to improve the economics and quality of recycling and reusing plastics, the rates and manners in which they are recycled and reused, examining the entire value chain. The Strategy will take into account some recent developments in treating plastic waste, such as regeneration and design innovations, so that, in the future, more of it could be avoided or recovered as a source of energy, thus reducing the global impact of greenhouse gas emissions.<sup>4</sup>

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<sup>1</sup>[http://europa.eu/rapid/press-release\\_IP\\_17\\_104\\_ro.pdf](http://europa.eu/rapid/press-release_IP_17_104_ro.pdf).

<sup>2</sup>COM(2015) 614 final - <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614>.

<sup>3</sup>COM(2017) 33 final - <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52017DC0033&from=LV>.

<sup>4</sup>[http://www.cdep.ro/afaceri\\_europene/afeur/2017/st\\_2473.pdf](http://www.cdep.ro/afaceri_europene/afeur/2017/st_2473.pdf).

On 26 January 2017 a roadmap for the preparation of the Strategy on plastics was published,<sup>1</sup> and then, on 16 January 2018, during the process of moving towards a circular economy, the Commission published a communication defining a Strategy for Plastics in a Circular Economy, identifying the key challenges, including low plastic waste reuse and recycling rates, greenhouse gas emissions associated with producing and incinerating plastics and the presence of plastic waste in oceans.

Under the new plans, all plastic packaging on the EU market will become recyclable by 2030, the consumption of single-use plastics will be reduced, and the intentional use of microplastics will be curbed.<sup>2</sup>

So as to meet this goal, the strategy presents a wide range of measures focusing on four areas:

1. Improving the economics and quality of plastics recycling,
2. Curbing plastic waste and littering,
3. Driving investment and innovation in the value chain of plastics, and
4. Harnessing global action.

The new measures will help European countries reduce the volume of plastic waste they produce and curb its devastating impact on the environment, climate, health and the economy.

Along with the Strategy on plastics, the Commission also adopted a Monitoring framework containing ten indicators which cover each stage of the cycle. The framework will measure progress with regard to the move towards a circular economy in the EU and its Member States. With its new strategy, the European Union:

- **will make recycling become profitable for companies**, drawing up new norms on packaging, aimed at improving the possibilities of recycling the used plastics on the market and stimulating the demand for recycled plastic content. It also envisages the expansion and modernisation of recycling facilities, as well as implementing an optimised, standardised system for selective waste collection in the EU.
- **will reduce plastic waste** through awareness campaigns and establishing the scope of the future EU norms. It is known that European legislation has already led to a significant reduction, in several Member States, of plastic bag use, so these new

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<sup>1</sup> [http://ec.europa.eu/smart-regulation/roadmaps/index\\_en.htm](http://ec.europa.eu/smart-regulation/roadmaps/index_en.htm).

<sup>2</sup> [http://europa.eu/rapid/press-release\\_IP\\_18-5\\_ro.htm](http://europa.eu/rapid/press-release_IP_18-5_ro.htm).

plans will focus on other types of single-use plastics and fishing gear. The Commission will take measures to restrict the use of microplastics in products and will set standards for biodegradable and compostable plastic.

- **will end the plastic pollution of the seas.** New norms on port reception facilities will address the issue of marine litter. Measures will be taken to ensure that waste generated on ships or accumulated at sea is not left behind but brought to land and properly managed. Other envisaged measures will aim to reduce the administrative burden on ports, ships and competent authorities.
- **will drive investment and innovation.**
- **will encourage change in the entire world,** cooperating with partners all over the world to find solutions and develop worldwide standards.

The Commission is confident that if we use resources efficiently, we will have new economic growth and create new jobs. It is considered that if we had better ecological design, if we prevented the generating of waste, and if we reused waste, the measures would bring the EU business environment annual net savings of up to €600 billion, as well as reduce total annual greenhouse gas emissions. In addition, it is considered that the GDP may grow by almost 1%.

On 28 May 2018, the European Commission proposed a full set of measures, in the form of the Single Use Plastics Directive, to help tackle issues related to plastic waste.

The new rules are proportionate and tailored to get the best results, with different measures applied to different products.

The proposal focuses on the 10 single-use plastic items most commonly found on European beaches. These represent 86% of all single-use plastic items on beaches, and about half of all plastic marine litter.<sup>1</sup>

The Directive includes a ban on plastic items such as straws, cotton swabs made from plastic, plastic plates and cutlery, plastic coffee stirrers and plastic balloon holders, indicating that beverage bottles (other plastic items) should be collected separately at a rate of 90% by 2025 (collection goal).

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<sup>1</sup>[https://ec.europa.eu/environment/efe/content/european-parliament-votes-single-use-plastics-ban\\_en](https://ec.europa.eu/environment/efe/content/european-parliament-votes-single-use-plastics-ban_en)

According to this new directive, Member States will have to significantly reduce the consumption of plastic food containers, according to a timeline of six years after the new rules have been transposed (consumption reduction goal).

Extended producer responsibility is also highlighted (litter clean-up costs should be borne by such producers), and to this end, the existing systems will have to help fund the clean-up of litter. The Council wishes to extend this obligation to companies that import or sell such products and/or single-use packaging, stressing that for tobacco products with filters, balloons, wet wipes and fishing gear, new extended producer responsibility systems will have to be set up.

Labelling requirements are also included, certain products requiring a label that indicates the manner in which the waste must be disposed of, the impact of the product on the environment and the presence of plastics in products. *Sanitary towels, wet wipes and balloons* will not be banned, but will require clear, standardised labelling that will indicate the manner in which waste must be disposed of.

In order to improve the implementation of the future directive, consumer awareness measures have been included with regard to the impact of using single-use plastics and fishing gear, as well as reuse systems and waste management options for all these products “so as to allow consumers to make better choices.”

The proposed Single Use Plastics Directive delivers on the commitment made in the 2018 European Plastics Strategy to tackle wasteful and damaging plastic litter through legislative action.

The new measures proposed will contribute to Europe’s transition towards a circular economy, and to reaching the UN Sustainable Development Goals, the climate commitments undertaken by the EU, and industrial policy objectives. The main goal is to support safer and more sustainable consumption and production patterns for plastics.<sup>1</sup>

The Members of the European Parliament added products made from oxo-degradable plastics<sup>2</sup> and expanded polystyrene food and beverage containers to the list of products to be banned from the EU market from 2021.

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<sup>1</sup> [https://ec.europa.eu/environment/efe/content/european-parliament-votes-single-use-plastics-ban\\_en](https://ec.europa.eu/environment/efe/content/european-parliament-votes-single-use-plastics-ban_en)

<sup>2</sup> Oxo-biodegradable technology involves the use of an additive (often containing magnesium, cobalt, nickel, etc., i.e. heavy metals) in the process of manufacturing packaging. This additive finely dispersed in the polymer matrix of packages has the property of converting a product that is inert to biodegradation, such as polyethylene, into a product that is biodegradable, essentially a plastic that degrades in a relatively short time, 3-24 months, unlike the traditional one that requires tens or even hundreds of years.

Furthermore, the microplastic<sup>1</sup> in cosmetic products such as toothpaste or creams must be restricted as much as possible.

This also applies to functional clothing and equipment containing microparticles or fluorescent bands, as well as to so-called “oxo-degradable plastics” which decompose into smaller components and finally into microparticles which penetrate the food chain of humans and animals.

In addition to the single-use plastic items to be banned, the European Parliament proposes that Member States will have to cut their use of several other items by at least 25% by 2025. These products include single-use food containers such as burger boxes, sandwich boxes and one-person portion-sized food containers of fresh or processed food that does not need further preparation, such as fruits, vegetables, desserts or ice cream, sold in single units.

The Commission will start negotiations with the other EU lawmaker, the European Parliament, which expressed its support at the vote on 24 October 2018.

The European Federation of the sector, PlasticsEurope, considered that these measures were “disproportionate” and, in a statement, called for “clearer rules”. “The underlying causes of marine litter are poor waste management” and “lack of awareness”.<sup>2</sup>

The EU Member States, through their ambassadors to the EU, have agreed on their common position on the Commission’s proposal, the Council of the EU said in a statement.

The proposal for a directive, as amended by the Members of the European Parliament, was approved by a large majority of 571 votes for, 53 votes against and 34 abstentions. The ban on certain plastic products seems to have been registered.

The European Parliament has proposed no less than 90 amendments to the initial proposal. Without reverting to the progress made by the European Commission in the field of plastics, the Parliament added provisions on the usefulness of plastics, considering that “Plastic plays a useful role in the economy and offers critical applications in many industries.” It underlined that plastics were mainly used in packaging (40%) and construction and construction (20%) and there is also a

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<sup>1</sup> Microplastic is a very new term describing small particles of plastic or other synthetic materials, with a diameter under 5 mm, which reach the environment in various ways.

<sup>2</sup> [https://www.lemonde.fr/pollution/article/2018/10/24/les-eurodeputes-pour-l-interdiction-des-produits-en-plastique-a-usage-unique\\_5374014\\_1652666.html](https://www.lemonde.fr/pollution/article/2018/10/24/les-eurodeputes-pour-l-interdiction-des-produits-en-plastique-a-usage-unique_5374014_1652666.html).

significant use of plastics in the automotive sector, that of electrical and electronic equipment, food and agriculture (Recital 1a).

From now on, it is up to the Council of the European Union, which brings together the representatives of the Member States, to decide, and it must also vote on the text drafted by the Commission. The Council adopted its position on 31 October 2018, endorsing the ban on single-use plastics for which there are sustainable alternatives and recommending that national targets reduce the consumption of single-use plastics for which there is no manufacturing alternative.

“Trilogue” negotiations (between the Parliament, the Council and the Commission), as the European jargon calls them, were held on 6 November 2018, to agree on a final text, the EU hoping to agree on new legislation by the end of 2018.

On 19 December 2018, the Ambassadors to the EU, meeting within Coreper<sup>1</sup>, approved the provisional agreement, the European Parliament and the Council of the EU reached a provisional political agreement concerning the new ambitious measures proposed by the Commission to combat marine litter at their source.

The agreement is based on the proposal concerning single-use plastics presented in May by the Commission within the first worldwide strategy on plastics<sup>2</sup>, adopted earlier this year with the purpose of protecting citizens and the environment from plastic pollution, while promoting growth and innovation.<sup>3</sup>

Thus, the new rules supported by the Council ban the use of certain single-use plastics for which there are alternatives, and introduce specific measures to reduce the use of plastic products that are more often than not disposed of inadequately.

The provisional agreement reached on 19 December 2018 must be approved officially by the European Parliament and the Council, and after the approval, the new Directive is to be published in the Official Journal of the EU, and the Member States must transpose it within the next two years.

The Single Use Plastics Directive is complemented by other measures to combat marine pollution, such as the Directive on port reception facilities for the delivery of

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<sup>1</sup> The Permanent Representatives Committee of the governments of Member States near the European Union, is the Council's main preparatory body.

<sup>2</sup> The agreement is based on existing EU legislation on waste, but it goes further by setting stricter rules for those types of products and packaging that are among the top ten polluting articles by frequency of occurrence on European beaches.

<sup>3</sup> IP-18-6867\_RO.pdf.

waste from ships<sup>1</sup>, on which the European Parliament and the Council reached a provisional agreement last week. Marine pollution does not respect borders and the use of a single national legislation would be clearly insufficient. The text therefore seems to respect the principle of subsidiarity, since it is considered that the consistent application of this international text contributes to fair competition within the Union.

At the beginning of December 2018, the European Commission also launched the “Circular Plastics Alliance<sup>2</sup>”, an alliance of the main stakeholders in the industry covering the entire value chain of plastics, as part of its permanent efforts to reduce plastic waste, increase the rate of recycled plastics and drive market innovation. The Alliance will cooperate with governments, intergovernmental organisations, academia, non-governmental organisations and the civil society, to invest in common projects to remove plastic waste from the environment.

The “Circular Plastics Alliance”<sup>3</sup> will aim to improve the economics and quality of plastics recycling in Europe, thus helping accelerate Europe’s transition towards a circular economy. The Alliance will particularly enhance the consistency between supply and demand for recycled plastics, which is identified as the main obstacle to an efficient European market for recycled plastics.

With this new initiative, the Commission wants to contribute to the objective of achieving at least 10 million tons of recycled plastics into new products on the EU market by 2025 as set in the European Strategy for Plastics<sup>4</sup>.

In the future, the key industry stakeholders<sup>5</sup> will be invited by the Commission to be part of the Alliance, particularly those in the sectors representing the highest demand of plastics in Europe, while also approaching other sectors for their contribution to approach the entire value chain of plastics.

The Alliance to End Plastic Waste (AEPW) already had its first meeting on 5 February 2019, as part of the EU Industry Days, and in May-June 2019 there will be a series of operational meetings with regard to key issues identified by the Alliance at their first meeting. Therefore, with regard to the Proposal for a Single Use Plastics

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<sup>1</sup> The Directive refers to ship-generated waste, focusing on marine litter, and sets out measures to ensure that waste generated on ships or collected at sea is always returned to land, recycled and processed in ports.

<sup>2</sup>The Alliance is a non-profit organisation that includes companies across the global value chain of plastics and consumer goods: manufacturers of chemicals and plastics, consumer goods companies, retailers, waste transformation and management companies.

<sup>3</sup>The Alliance to End Plastic Waste (AEPW)

<sup>4</sup>[http://europa.eu/rapid/press-release\\_IP-18-6728\\_en.htm](http://europa.eu/rapid/press-release_IP-18-6728_en.htm)

<sup>5</sup>Particularly the packaging industry, constructions and the automotive industry.



Directive, the EU wishes to complete the legislative path of the text by spring 2019 so that it would enter into force in 2021.

The Commission would like the new directive to be completed before the end of its mandate in 2019, so that rules that are not set forth may enter into force before 2022. National bans already exist; in France, for example, plastic cups and plates will be banned on 1 January 2020. EU countries will have to develop national plans to encourage the use of products suitable for multiple use (as well as reuse and recycling) and meet the reduction target.<sup>1</sup>

### 3. Conclusions

This directive is considered an ambitious future directive, essential to the protection of the marine environment and the reduction of costs generated by environmental damage attributed to plastic pollution in Europe, estimated at €22 billion by 2030.

The key objective of the EU's action programme for the environment by 2020, that of "Doing more with less", can be achieved in my opinion, taking into account that all proposed measures are just the first step on a long, difficult journey, because, looking back, after the decision of restricting single-use plastic bags made in 2016<sup>2</sup>, their consumption in the EU has already dropped by half.

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<sup>1</sup><https://www.actu-environnement.com/ae/news/Plastique-Parlement-europeen-allonge-liste-produits-interdits-32263.php4>

<sup>2</sup>A Directive that aims to reduce the consumption of single-use plastic bags by 50% by 2017 and 80% by 2019.

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